Unprecedented Increase in Drug Overdose Deaths Rates in U.S.

Drug Overdose Deaths per 100,000 Population

Source: CDC, NCHS/NVSS, 1968-2017
Rapid Increase in Drug Overdose Death Rates by County and Wide Geographic variation

SOURCE: NCHS Data Visualization Gallery
Continued Evolution of Overdose Deaths in the U.S.

Source: CDC, NCHS/NVSS, 1999-2017
People Misusing Rx Opioids or Using Heroin Use Many Other Substances and Commonly Have Mental Illness

Source: SAMHSA NSDUH 2017
Examples of Outcomes of Interest

**Opioid prescribing**
- # of Rxs/Patients
- Days supply
- MMEs
- Concurrent benzos

**MOUD utilization**
- # DATA-waived providers & OTPs
- # Buprenorphine Rxs/Patients
- # ER naltrexone Rxs/Patients
- # People receiving methadone
- Retention in treatment

**Naloxone utilization**
- # naloxone Rxs/Patients
- Community-based naloxone distribution
- First responder naloxone use

**Risk Behaviors**
- Rx opioid misuse
- Heroin use
- Illicit synthetic opioid use
- Opioid use disorder
- Multiple provider episodes
- Injection drug use
- Syringe sharing and reuse
- Sharing of other injection equipment
- Other non-oral routes of use
- Poly-substance use

**Health and Social Outcomes**
- EMS overdose runs
- ED visits for non-fatal overdose
- Hospitalizations
- Overdose deaths
- Neonatal abstinence syndrome
- Foster Care placements
- Infectious diseases
  - Viral hepatitis (A,B,C)
  - HIV incidence (IDU)
  - Endocarditis and other bacterial or fungal infections (IDU)
- Criminal Justice Outcomes
  - Crime rates (drug-related)
  - Recidivism (drug-related)
  - Incarceration rates (drug-related)
- Economic costs
# Matrix of Commonly Used Data Sources, What They Capture, and Their Timeliness

<table>
<thead>
<tr>
<th>Degree Upstream</th>
<th>Pre-disease upstream risks and promotors (community or individual level)</th>
<th>Self-reported illness (community dwelling)</th>
<th>Prescriptions &amp; Sales / Prescribing / Laboratory</th>
<th>Outpatient Visits</th>
<th>Emergency Department / Emergency Medical Services</th>
<th>Hospitalizations</th>
<th>Treatment Admission/ Treatment Capacity</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRFSS, YRBS, NSDUH, NESARC, MTF</td>
<td>DEA-NFLIS</td>
<td>BRFSS/YRBS, NSDUH, NESARC, MTF, NHBSS</td>
<td>NAVIPPRO RADARS</td>
<td>LABCORP, QUEST, MARKETSCAN</td>
<td>IQVIA Symphony Health EHRs</td>
<td>State PDMPs</td>
<td>NAVIPPRO RADARS</td>
<td>SUDORS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timeliness of Data Release</th>
<th>≥ 1 Year</th>
<th>Quarterly</th>
<th>Weekly</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-disease upstream risks and promotors (community or individual level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported illness (community dwelling)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescriptions &amp; Sales / Prescribing / Laboratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient Visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Department / Emergency Medical Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Admission/ Treatment Capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- BRFSS: Behavioral Risk Factor Surveillance System
- YRBS: Youth Risk Behavior Survey
- NSDUH: National Survey on Drug Use and Health
- NESARC: National Survey on Economic Status of Addiction Recovery
- MTF: Monitoring the Future
- DEA-NFLIS: Drug Enforcement Administration National Forensic Laboratory Information System
- NAVIPPRO RADARS: National All Violent Incidents Police Proactive Reporting System Radar
- RADARS: Regional Data Analysis and Research Support System
- ARCOS: Addiction Research Center Onset Study
- MEPS: Medical Expenditure Panel Survey
- OPTUMlabs: OPTUM Health
- Medicaid and Medicare claims, All-Payer All Claims Data
- HCUP: Health Care Cost Containment Project
- NEISS: National Electronic Injury Surveillance System
- NEMSIS: National Emergency Medical Services Injury Surveillance System
- NHCS: National Hospital Cost Containment Survey
- OPTUMlabs: OPTUM Health
- Medicaid and Medicare claims, All-Payer All Claims Data
- HCUP: Health Care Cost Containment Project
- OPTUMlabs: OPTUM Health
- Medicaid and Medicare claims, All-Payer All Claims Data
- TEDS: Treatment Episode Data Set
- NSSATS: National Self-Administered Treatment Survey
- NVSS: National Vital Statistics System
- NDI: National Death Index
- NVDRS: National Violent Death Reporting System
- FARS: Fatality Assessment and Reporting System
- SUDORS: Substance Use Disorder Observational Registry
- SAMHSA & DEA DATA 2000 Provider Information

- Labcorp, Quest, Marketscan, IQVIA Symphony Health EHRs
- State PDMPs
- Marketscan, EHRs
- Marketscan, ESSENCE/NSSP, EHRs
- Marketscan, EHRs
- TEDS, NSSATS, NAVIPPRO RADARS, NAVIPPRO RADARS, NAVIPPRO RADARS, SAMHSA & DEA DATA 2000 Provider Information
- NVSS, NDI, NVDRS, FARS

- Quarterly
- Weekly
- Daily
Challenges with Current Data and Data Systems

- Hidden populations
- Sensitive behaviors
- Timeliness
- Granularity
- Specificity
- Point in time view
- Snapshot of one aspect of the problem
- Lack of linkages across data platforms
- Data sharing and use
- Lots of noise in the policy space
Opportunities

HHS 5-Point Strategy to Combat the Opioid Crisis

1. Better addiction prevention, treatment, and recovery services
2. Better data
3. Better pain management
4. Better targeting of overdose reversing drugs
5. Better research

- CDC large increase in funding over past 5 years to improve surveillance
  - NVSS
  - SUDORS
  - ESOOS/NSSP
  - NVSS
  - SSP and IDU-related surveillance
  - NAS
  - Proprietary data sources

- New focus on data science methods and tools
For more information: fjr0@cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.